

II. AMENDMENTS TO THE DRAWINGS:

Please replace the drawings of the present application with the attached drawings. The changes to the drawings are as follows:

FIGs. 3 and 5: the respective full-adder matrices have been revised to include: the 8-bit by 8-bit multipliers, a_i , and x_j ; and a row of the products, p_k , of the full-adders, where i, j, k are integers, $0 \leq i, j \leq 7$ and $0 \leq k \leq 15$.

FIG. 6: the full-adder matrices have been revised to include: the 6-bit by 6-bit multipliers, a_i , and x_j (as a result from the bit slicing from the full-adder in FIG. 3); and a row of the products, p_k , of the full-adders, where i, j, k are integers, $0 \leq i, j \leq 5$ and $0 \leq k \leq 11$.

FIG. 7: the full-adder matrices have been revised to include: the 5-bit by 5-bit multipliers, a_i , and x_j (as a result from the bit slicing from the full-adder in FIG. 3); and a row of the products, p_k , of the full-adders, where i, j, k are integers, $0 \leq i, j \leq 4$ and $0 \leq k \leq 9$.

FIG. 8 and FIG.9: the respective full-adder matrices have been revised to include: the 4-bit by 4-bit multipliers, a_i , and x_j (as a result from the bit slicing from the full-adder in FIG. 3); and a row of the products, p_k , of the full-adders, where i, j, k are integers, $0 \leq i, j \leq 3$ and $0 \leq k \leq 7$.

Support for these revisions can be found in the brief description on page 4 of the specification where the respective figures are briefly described. Further support of the revisions can be found in the detailed description from page 7, line 9 through page 8, line 14 with respect to FIGs. 3, 5, 6, 7, 8 and 9.

IV. REMARKS

Applicant has considered the Office Action with mailing date of July 14, 2006. Claims 1 to 18 are pending in this application. By this amendment, claims 1, 8, and 13 have been amended and claims 2, 9 and 14 have been cancelled. Applicant does not acquiesce in the correctness of the rejections and reserves the right to present specific arguments regarding any rejected claims not specifically addressed. Further, Applicant reserves the right to pursue the full scope of the subject matter of the original claims in a subsequent patent application that claims priority to the instant application. Reconsideration in view of the following remarks is respectfully requested.

A. OBJECTION OF DRAWINGS

The Office has objected to FIG. 3, FIG. 5, FIG. 6, FIG. 7, FIG. 8 and FIG. 9 under 37 CFR 1.83(b) as allegedly being incomplete. Applicant has amended the respective figures to include previously omitted multipliers, a_i , multiplicands, x_j , and products, p_k , where $0 \leq i, j \leq 7$, and $0 \leq k \leq 15$ to illustrate that the fuller adder matrices are 8x8 in FIG. 3. and FIG. 5, 6x6 in FIG. 6, 5x5 in FIG. 7 and 4x4 in FIG. 8 and FIG. 9. As these revisions find support in the brief description of the drawings on page 4 and the detailed description from page 7, line 9 through page 8, line 14 of the specification, no new matter is believed to have been added. Applicant believes that this amendment places the application in better clarity and accordingly requests that the objection be withdrawn.

B. OBJECTION OF SPECIFICATION

The Office has objected to the description of the figures in FIG. 3, Fig. 5, FIG. 6,
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FIG. 7, FIG. 8 and FIG. 9 in the specification. No amendments have been made to the specification because Applicant believes that revision of the drawings corrects the alleged grounds for objection. Accordingly, Applicant requests that the objection be withdrawn.

In the Office Action, claims 1 – 6 and 8 – 17 are rejected under 35 U.S.C. §102(b) as allegedly being anticipated by U.S. Pat. No. 5,935,198, hereinafter "Blomgren". Claim 7 is rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Blomgren in view of US Pat. No. 5,912,832, hereinafter "Flahie et al." and US Pat. No. 5,612,710, hereinafter "Christensen et al.". Claim 18 is rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Blomgren in view of US Pat. No. 5,838,387, hereinafter "Allen et al.". Applicant submits that the application is in order for allowance based on the following remarks.

C. REJECTION OF CLAIMS 1-6 and 8-17 UNDER 35 U.S.C. §102(b)

With regard to the 35 U.S.C. §102(a) rejection over Blomgren, Applicant asserts that Blomgren does not teach each and every feature of the claimed invention. For example, with respect to currently amended independent claims 1, 8 and 13, Applicant submits that Blomgren fails to teach "...bit slicing each multiplier according to the pixel format". For clarification purposes, Applicant submits that "pixel format" as disclosed in the claimed invention is not limited to pixel formats defined by 8-bit by 8-bit multipliers, because pixel formats between the source and destination may be different. For example, a RGB 565 pixel format, a RGB 1555 pixel format and a RGB 4444 pixel format respectively requires: four 5-bit by 5-bit and two 6-bit by 6-bit multipliers; six 5-bit by 5-bit multipliers; and eight 4-bit by 4-bit multipliers. Page 2, line 15 – Page 3, line 1

of current application. As set out on page 8, line 7 – 14 in the specification, a RGB 565 pixel format can be bit sliced according to the illustration in FIG. 6 and FIG. 7 into a 6x6 multiplier and a 5x5 multipler to enable 2 operations per cycle. In contrast to the claimed invention, Blomgren discloses, in col. 13, lines 32-34, dividing a "... full size multiplier ... into smaller sections which can operate independently for 8-bit multiplies or together as one large multiplier for 32-bit multiplies." Since Blomgren does not disclose splitting a full-adder matrix for an 8lt-by 8-bit multiplier by bit-slicing according to the pixel format, it does not anticipate the claimed invention. Accordingly, Applicant respectfully requests that the Office withdraw its rejection.

With respect to dependent claims, Applicant herein incorporates the arguments presented above with respect to the independent claims from which the claims depend. Furthermore, Applicant submits that all dependant claims are allowable based on their own distinct features. Since the cited art does not teach each and every feature of the claimed invention, Applicant respectfully requests withdrawal of this rejection.

D. REJECTION OF CLAIMS 7 and 18 UNDER 35 U.S.C. §103(a)

With regard to the 35 U.S.C. §103(a) rejection over Blomgren in view of Flahle et al. and Christensen et al., Applicant asserts that the combined references cited by the Office fail to teach or suggest each and every feature of the claimed invention. For example, with respect to independent claim 1, Applicant respectfully submits that the combined references fail to teach or suggest "...reconfiguring each blending unit multiplier to perform at least two operations per cycle, wherein the reconfiguring includes bit slicing each multiplier according to the pixel format." As the Office has noted on page 7 of the current Office Acton, "...Blomgren did not expressly disclose

dividing an 8-bit by 8-bit multiplier to perform at least two operations per cycle." The Office cites Flahie and Christensen as remedies to the deficiency in Blomgren with the opinion that a person of ordinary skill in the art would be motivated to modify Blomgren's system by adopting Flahie's segregation of an n-bit by n-bit multiplier into 4 sets of n-bit by n-bit basic building blocks for parallel interpolation of Christensen's 16-bit multicolor pixel word, where $0 < n < \text{size of multiplier}$. However, the Office has not provided explanations or guidelines as to its rationale on which a person of ordinary skill in the art may follow in modifying Blomgren by applying Flahie and Christensen. Without providing factual support, the Office fails to establish a *prima facie* case of obviousness under this rejection.

Assuming arguendo, that a person of ordinary skill attempts to modify the teachings of Blomgren by applying Flahie and Christensen as remedies, Applicant respectfully asserts that the claimed invention would not be attained because Flahie does not teach or suggest having the multiplier perform "... at least two operations per cycle" (claim 1). On the contrary, Flahie teaches an apparatus that minimizes propagation delay in an n-bit adder (col. 5, line 9-10) performed in a three level cycle (col. 4, line 9 – 20). As such, Flahie does not cure Blomgren's deficiency. Furthermore, col. 3, lines 41 – 44 and col. 4, line 24 in Flahie teaches that the "...multiplicand and multiplier of an n-bit by n-bit multiplication may be segregated ..." into basic 4-bit building blocks but does not expressly disclose that the segregation of the multiplier or the multiplicand is "... according to the pixel format". Claim 1. To this extent, a person of ordinary skill in the art combining Flahie with Blomgren, would not be able to achieve the claimed invention on Christensen's 16-bit multicolor word because the multiplier does not perform "at least two operations per cycle", claim 1. Without the likelihood of

success in achieving the claimed invention, a person of ordinary skill would not even contemplate modifying Blomgren with the teachings of Flahie and Christensen. With independent claims non-obvious to a person of ordinary skill, the feature in dependent claim 7 would also be non-obvious. The foregoing arguments also apply to independent claims 8 and 13; and hence all dependent claims appended thereon. Accordingly, Applicant respectfully requests that the Office's rejection be withdrawn.

With further regard to the 35 U.S.C. §103(a) rejection over Blomgren in view of Allen et al., Applicant submits that the combined features of the cited art fail to teach or suggest each and every feature of the claimed invention as stated in the arguments of the foregoing paragraphs. With respect to claim 18, as noted by the Office, Blomgren is deficient in teaching a graphics system that includes a scalar. The Office cites Allen's scaling engine to cure Blomgren's deficiency. However, Allen's scaling engine is for use over a plurality of clock cycles, col. 2, line 22-23, which Blomgren does not teach or suggest. Applicant submits that the Office has not explained the manner in which a person of ordinary skill in the art would modify Blomgren's system to incorporate Allen's scaling engine. As such, Applicant asserts that the Office has not provided factual support to establish a *prima facie* case of obviousness. Accordingly, Applicant respectfully requests that the Office withdraw its rejection.

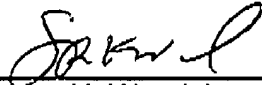
With regard to the Office's other arguments regarding dependent claims, Applicant herein incorporates the arguments presented above with respect to independent claims listed above. In addition, Applicant submits that all dependant claims are allowable based on their own distinct features. However, for brevity, Applicant will forego addressing each of these rejections individually, but reserves the

right to do so should it become necessary. Accordingly, Applicant respectfully requests that the Office withdraw its rejection.

V. CONCLUSION

In light of the above, Applicant respectfully submits that all claims are in condition for allowance. Should the Examiner require anything further to place the application in better condition for allowance, the Examiner is invited to contact Applicant's undersigned representative at the number listed below.

Respectfully submitted,



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